an absorbent composite structure sandwiched between said backsheet and topsheet layers, said absorbent composite including an absorbent core having a first, superabsorbent containing, fibrous primary layer region and at least a second, superabsorbent containing, fibrous primary layer region;

at least one of said first and second primary layer regions having a Liquid Wicking Value of at least about 38%; and

at least one of said first and second primary layer regions includes a plurality of sublayers; wherein

said absorbent core has a dry thickness of not more than about 6 mm, and a minimum crotch width of not more than about 10 cm.

Remarks

The claims have been amended to provide adequate coverage for Applicants' contribution to the art, and to expedite the prosecution of the present application. The amendments are clearly supported by the original disclosure, and do not introduce new matter. A **Version Of Paragraphs With Markings To Show Changes Made**, and a **Version Of Claims With Markings To Show Changes Made** are enclosed and made a part hereof.

The disclosed invention can provide an absorbent system which includes multiple absorbent layer regions. The two or more absorbent layer regions can advantageously interact in a manner which preferentially locates an appointed liquid in a selected layer region. This localization of the liquid within this layer region can increase the potential of this layer region to move liquid through capillary action due to the higher saturation level and increased amount of liquid available. The intake capability of the absorbent system can be maintained or improved over current systems by keeping a layer region of the absorbent system at low saturation levels through many insults of the product, while providing optimum intake performance through appropriate control of the composite properties. The low saturation in this layer region can provide void volume for the incoming insult as well as a high permeability, thus increasing the intake rate of the absorbent system as a whole. The properties of this layer region can advantageously be balanced with an appropriately high level of capillary tension to provide enough control of the liquid to substantially stop undesired leakage. This low saturation layer region can be used in addition to a layer of surge management material and can provide an intake functionality in addition to that provided by the surge material.

In particular aspects of the invention, at least one primary layer region can have a heterogeneous structure. In particular configurations, the at least one primary layer region can include a plurality of two or more sublayers. In other aspects, the layer regions of the absorbent system can cooperate to provide a desired Liquid Wicking Potential value, and can also provide a desired Flow Conductance Value. Further aspects of the invention can include superabsorbent polymer (SAP) material which exhibits a particular MAUL value and/or a particular controlled absorbency rate. For example, a desired controlled-rate superabsorbent can exhibit a particular Tau value. In additional aspects, the invention can include a combination of superabsorbent materials which have a particular ratio of Tau values.

In its various aspects, the present invention can provide an article having a more efficient absorbent structure which is thin with low bulk, has high absorbent capacity, and is resistant to leakage. The configurations of the invention can more fully utilize the total potential absorbent capacity of the absorbent structure, and can more efficiently move and distribute acquired liquid away from the original intake area to more remote areas which are located closer to the distal end regions of the absorbent structure. In addition, the structures of the invention can provide an ability to acquire and intake liquid at a rapid rate, and can maintain the desired intake rate after the absorbent structure has been wetted and has reached a significant portion of its potential, total absorbent capacity.

Claims 36-39 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In view of the amendments, it is respectfully submitted that the objections to the claims have been obviated.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112 are respectfully requested.

Claims 9-39 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent 4,923,454 to Seymour et al. (hereinafter "Seymour"). The rejection is respectfully **traversed** to the extent that it may apply to the currently presented claims.

Seymour describes absorbent web structures suitable for incorporation into absorbent articles such as sanitary napkins, diapers, incontinent devices, training pants and the like. Such structures comprised webs of entangled melt blown microfibers which are prepared from a particular type of hydrophilic nylon copolymer. Preferred hydrophilic nylon microfiber-based webs also contain staple fibers and/or particles of hydrogel-forming polymeric gelling agent. Web

structures containing hydrophilic nylon microfibers have specially desirable comfort, integrity and fluid handling characteristics.

Seymour, however, does not disclose or suggest the configurations called for by Applicants' claimed invention. For example, Seymour also does not teach an article which includes a superabsorbent configured to have the Tau values or the MAUL values called for by Applicants' presented claims. Neither does Seymour teach an arrangement which includes a plurality of sublayers having uncreped-through-air-dried material, as called for by particular claims of Applicants'. Seymour also does not disclose or suggest a configuration having the combination of high Liquid Wicking Value, low thickness, and narrow crotch width, as called for by Applicants' claimed invention. Neither does Seymour teach an article which includes first and second primary layer region having different longitudinal extents, as called for by particular claims of Applicants'. Additionally, Seymour fails to disclose or suggest an absorbent article wherein a first primary layer region includes a superabsorbent having a first Tau value and a second primary layer region includes a superabsorbent having a different, second Tau value, as called for by Applicants' claimed invention. Seymour further fails to teach an absorbent article wherein first and second superabsorbent materials have a selected ratio of Tau values, as called for by Applicants' presented claims.

It is, therefore, readily apparent that Seymour fails to "disclose each chemical and physical feature instantly claimed". As a result, it is clearly improper to conclude that the structures taught by Seymour would meet any "property requirement specified". To the contrary, the structures taught by Seymour pertain to webs of entangled melt blown microfibers which are prepared from a particular type of hydrophilic nylon copolymer. The hydrophilic nylon microfiber-based webs may also contain staple fibers and/or particles of hydrogel-forming polymeric gelling agent. The described hydrogel-forming particles have properties, such as particle size, "gel volume", and "level of extractable polymer material". Seymour, however, provides no recognition or suggestion that the hydrogel-forming particles might be further modified and configured to provide a primary layer region having the distinctive features or arrangements called for by Applicants' claimed invention.

As a result, when compared to Applicants claimed invention, the structures taught by Seymour would be less able to provide an efficient absorbent structure which is thin with low bulk, has high absorbent capacity, and is resistant to leakage. The configurations described by Seymour would be less able to utilize the total potential absorbent capacity of the absorbent structure, and would be less able to efficiently move and distribute acquired liquid away from the

original intake area to more remote areas. In addition, the structures taught by Seymour would be less able to acquire and intake liquid at a rapid rate, and would be less able to maintain a desired intake rate after the absorbent structure has been wetted and has reached a significant portion of its potential, total absorbent capacity. It is, therefore, readily apparent that Seymour does not teach Applicants' claimed invention.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 are respectfully requested.

Claims 1, 4, and 6-8 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Seymour in view of U.S. Patent 5,820,973 to Dodge II et al. (hereinafter "Dodge"). The rejection is respectfully **traversed** to the extent that it may apply to the currently presented claims.

Dodge describes a surge material for personal care products comprising a layered structure of at least one relatively high permeability layer on a top side toward a wearer and at least one relatively low permeability layer where the structure has a capillary tension range between about 1 and 5 cm with a differential capillary tension of at least about 1 cm from top to bottom. The surge material can have a high permeability layer with a permeability of at least 1000 Darcys and a low permeability layer with a permeability of less than 1000 Darcys. The surge material can also have a said high permeability layer which has a permeability of at least 250 Darcys greater than the low permeability layer. Such a layered structure can have a first insult run-off value of at most 30 ml from a 100 ml insult delivered at 20 ml/second.

It is respectfully submitted that the Examiner's rejections under 35 U.S.C. §103 are improper, and that the teachings of the cited references do not render "obvious" a structure having the combination of components called for by Applicants' claimed invention. It is respectfully submitted that the Examiner has not established *prima facie* that a proper combination of the cited references would disclose or suggest Applicants' claimed invention.

It is readily apparent that Dodge, when taken in its entirety, fails to cure the deficiencies of Seymour. For example, Dodge does not teach a configuration having the combination of high Liquid Wicking Value, low thickness, and narrow crotch width, as called for by Applicants' claimed invention. To the contrary, a person of ordinary skill would ordinarily recognize that in thin absorbent designs with narrow crotch regions, the target area of the product, in its dry state, would not have enough void volume available to efficiently absorb the initial insult of liquid, such as urine. The difficulties faced in the past have typically involved a desire to have a relatively low

SAP content, either in the entire structure or within an individual layer, to enhance wicking capability. Where the low SAP concentration is used throughout the product, an excessively large product thickness may be needed to provide the desired absorbent capacity. Attempts have been made to provide one absorbent layer with a low SAP concentration to promote wicking, while maintaining high SAP concentrations in another other layer to achieve a thin product having the desired amount of absorbent capacity. Such systems have not provided the desired levels of performance because the liquid can preferentially move into the areas containing relatively higher concentrations of SAP. In the layer region containing the relatively low concentration of SAP, the amount of remaining liquid can be insufficient to provide the desired levels of wicking.

Accordingly, it is readily apparent that a person of ordinary skill would have been led away from the modifications needed to synthesize the invention called for by Applicants' currently presented claims. It is respectfully submitted that the Examiner has employed Applicants' claimed invention as an instruction manual or "template" to select from a myriad of possible components and then piece together the disparate components in a manner that would be contrary to the understanding of a person of ordinary skill. Such impermissible use of hindsight is clearly improper.

Additionally, a proper combination of Seymour and Dodge does not teach an arrangement wherein an article which includes a superabsorbent configured to have the Tau values or the MAUL values called for by Applicants' presented claims. Neither does a proper combination of Seymour and Dodge teach an arrangement which includes a plurality of sublayers having uncreped-through-air-dried material, as called for by particular claims of Applicants'. A proper combination of Seymour and Dodge also does not teach an article which includes first and second primary layer region having different longitudinal extents, as called for by particular claims of Applicants'. Additionally, a proper combination of Seymour and Dodge fails to disclose or suggest an absorbent article wherein a first primary layer region includes a superabsorbent having a first Tau value and a second primary layer region includes a superabsorbent having a different, second Tau value, as called for by Applicants' claimed invention. A proper combination of Seymour and Dodge further fails to teach an absorbent article wherein first and second superabsorbent materials have a selected ratio of Tau values, as called for by Applicants' presented claims.

As a result, when compared to Applicants claimed invention, the structures taught by a proper combination of Seymour and Dodge would remain less able to provide an efficient

absorbent structure which is thin with low bulk, has high absorbent capacity, and is resistant to leakage. The configurations described by a proper combination of Seymour and Dodge would be less able to utilize the total potential absorbent capacity of the absorbent structure, and would be less able to efficiently move and distribute acquired liquid away from the original intake area to more remote areas. In addition, the structures taught by a proper combination of Seymour and Dodge would be less able to acquire and intake liquid at a rapid rate, and would be less able to maintain a desired intake rate after the absorbent structure has been wetted and has reached a significant portion of its potential, total absorbent capacity. It is, therefore, readily apparent that a proper combination of Seymour and Dodge would fail to teach Applicants' claimed invention.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

Claims 1, 4, and 6-8 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent 5,762,641 to Bewick-Sonntag et al. (hereinafter "Bewick-Sonntag") in view of U.S. Patent 6,245,051 to Zenker et al. (hereinafter "Zenker"), and the previously cited U.S. patent to Dodge. The rejection is respectfully **traversed** to the extent that it may apply to the currently presented claims.

As described by Bewick-Sonntag, an absorbent core comprises, in sequence through it thickness, a first structure comprising an upper layer comprising a first fibrous material having compressibility of at least 5 cm^3/g and a drip capacity of a least 10 g/g, the structure also comprising a first superabsorbent material having a substantially non-decreasing dynamic swelling rate and a second a structure comprising a second fibrous material and a second superabsorbent material having a dynamic swelling pressure of at least 15 g/g at 10 g/cm^2 (0.7 psi), wherein the dynamic swelling rate of the first superabsorbent material is not greater than 2/3 of the dynamic swelling rate of the second superabsorbent material.

The Examiner has recognized that Bewick-Sonntag does not teach the invention called for by Applicants' presented claims. Accordingly, the rejection has been based upon a combination of Bewick-Sonntag with Zenker and Dodge.

Zenker describes an absorbent article (10) having a longitudinal direction (26), a lateral direction (24), a first waistband portion (12), a second waistband portion (14) and an intermediate portion (16) interconnecting the first and second waistband portions. The article (10) includes a backsheet layer (30); a liquid permeable top sheet layer (28); and an absorbent structure (32) sandwiched between the backsheet and topsheet layers. The absorbent structure includes a

retention portion (48) having a first retention section (47) and a longitudinally opposed second retention section (49). A liquid distribution, waist belt component (52) has a belt first end region (54), a belt second end region (56) and a belt medial region (58) interconnecting the belt first and second end regions. The belt first end region (54) is joined to the article in liquid communication with the first retention section (47), and the distribution belt component (52) has sufficient lateral length to extend along a wearer's waist area to position the belt second end region (56) in liquid communication with the second retention section (49) when the article is worn.

It is readily apparent that Zenker and Dodge, when taken in their entirety, fail to cure the deficiencies of Bewick-Sonntag. For example, a proper combination of Bewick-Sonntag, Zenker and Dodge would not teach a configuration having the combination of high Liquid Wicking Value, low thickness, and narrow crotch width, as called for by Applicants' claimed invention. To the contrary, a person of ordinary skill would ordinarily recognize that in thin absorbent designs with narrow crotch regions, the target area of the product, in its dry state, would not have enough void volume available to efficiently absorb the initial insult of liquid, such as urine. The difficulties faced in the past have typically involved a desire to have a relatively low SAP content, either in the entire structure or within an individual layer, to enhance wicking capability. Where the low SAP concentration is used throughout the product, an excessively large product thickness may be needed to provide the desired absorbent capacity. Attempts have been made to provide one absorbent layer with a low SAP concentration to promote wicking, while maintaining high SAP concentrations in another other layer to achieve a thin product having the desired amount of absorbent capacity. Such systems have not provided the desired levels of performance because the liquid can preferentially move into the areas containing relatively higher concentrations of SAP. In the layer region containing the relatively low concentration of SAP, the amount of remaining liquid can be insufficient to provide the desired levels of wicking.

Accordingly, it is readily apparent that a person of ordinary skill would have been led away from the modifications needed to derive Applicants' claimed invention. It is respectfully submitted that the Examiner has employed Applicants' claimed invention as an instruction manual or "template" to select from a myriad of possible components and then piece together the disparate components in a manner that would be contrary to the understanding of a person of ordinary skill. Such impermissible use of hindsight is clearly improper.

Additionally, a proper combination of Bewick-Sonntag, Zenker and Dodge does not teach an arrangement wherein an article which includes a superabsorbent configured to have the Tau values or the MAUL values called for by Applicants' presented claims. Neither does a proper

combination of Bewick-Sonntag, Zenker and Dodge teach an arrangement which includes a plurality of sublayers having uncreped-through-air-dried material, as called for by particular claims of Applicants'. A proper combination of Bewick-Sonntag, Zenker and Dodge also does not teach an article which includes first and second primary layer region having different longitudinal extents, as called for by particular claims of Applicants'. Additionally, a proper combination of Bewick-Sonntag, Zenker and Dodge fails to disclose or suggest an absorbent article wherein a first primary layer region includes a superabsorbent having a first Tau value and a second primary layer region includes a superabsorbent having a different, second Tau value, as called for by Applicants' claimed invention. A proper combination of Bewick-Sonntag, Zenker and Dodge further fails to teach an absorbent article wherein first and second superabsorbent materials have a selected ratio of Tau values, as called for by Applicants' presented claims.

It is, therefore, readily apparent that a proper combination of Bewick-Sonntag, Zenker and Dodge do not "disclose each chemical and physical feature instantly claimed". As a result, it is clearly improper to conclude that the structures taught by a proper combination of Bewick-Sonntag, Zenker and Dodge would meet any "property requirement specified". To the contrary, the arrangements taught by Bewick-Sonntag, pertain to a first structure comprising an upper layer comprising a first fibrous material having compressibility of at least 5 cm^3/g and a drip capacity of a least 10 g/g, the structure also comprising a first superabsorbent material having a substantially non-decreasing dynamic swelling rate and a second a structure comprising a second fibrous material and a second superabsorbent material having a dynamic swelling pressure of at least 15 g/g at 10 g/cm^2. Bewick-Sonntag, however, provides no recognition or suggestion that the hydrogel-forming particles might be further modified and configured to provide a primary layer region having the distinctive features or arrangements called for by Applicants' claimed invention

As a result, when compared to Applicants claimed invention, the structures taught by a proper combination of Bewick-Sonntag, Zenker and Dodge would still be less able to provide an efficient absorbent structure which is thin with low bulk, has high absorbent capacity, and is resistant to leakage. The configurations described by a proper combination of Bewick-Sonntag, Zenker and Dodge would be less able to utilize the total potential absorbent capacity of the absorbent structure, and would be less able to efficiently move and distribute acquired liquid away from the original intake area to more remote areas. In addition, the structures taught by a proper combination of Bewick-Sonntag, Zenker and Dodge would be less able to acquire and intake liquid at a rapid rate, and would be less able to maintain a desired intake rate after the

absorbent structure has been wetted and has reached a significant portion of its potential, total absorbent capacity. It is, therefore, readily apparent that a proper combination of Bewick-Sonntag, Zenker and Dodge would fail to teach Applicants' claimed invention.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

In view of the amendments, it is respectfully submitted that the present application is in condition for allowance. Accordingly, reconsideration and withdrawal of the rejections and allowance of Applicants' currently presented claims are earnestly solicited.

Please charge any prosecutional fees which are due to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875.

The undersigned may be reached at: (920) 721-2435.

Respectfully submitted,

ROB D. EVERETT, ET AL.

By: Paul Yee

Paul Yee
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Enclosure

CERTIFICATE OF MAILING

I, Barbara D. Miller, hereby certify that on February 20, 2002, this Amendment is being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

By: Barbara D. Miller

Barbara D. Miller

Version of Paragraphs With Markings To Show Changes Made

Paragraph beginning at page 37, line 17:

The second layer region 50 can provide a bottom layer, and can typically extend over the entire area of the [of the] overall absorbent core 30. The second layer region 50 is typically designed to provide the bulk of the distribution or wicking ability of the absorbent core, and therefore will typically extend beyond and past the terminal edges of the area covered by the first layer region 48. The second layer region typically can have a basis weight of not less than about 300 gsm, and desirably can have a basis weight of not less than about 350 gsm. In further aspects, the second layer region typically can have a basis weight of not more than about 700 gsm, and desirably has a basis weight of not more than about 450 gsm.

Paragraph beginning at page 51, line 31:

The values of the partial saturation thickness height (h) can [the] then be employed in the equations employed to calculate the Flow Conductance Value for the absorbent composite system.

Paragraph beginning at age 52, line 12:

The permeability (K) of each layer in the core can be computed as follows: Each layer in the absorbent core[-] is a combination[s] of substantially non swelling fibers and superabsorbent particles, fibers or flakes.

Paragraph beginning at page 72, line 7:

Determine the interpolated time (Tau) to reach 60% of the equilibrium absorption capacity. This is done by calculating the capacity at 60% of the equilibrium value, then estimating the corresponding time to reach this capacity from the graph. The interpolated time to reach 60% capacity (by this procedure), is obtained by performing a linear interpolation with the data points that lay to either side of the estimated time.

Version of Claims With Markings To Show Changes Made

1. (amended twice) An absorbent article, comprising:

a backsheet layer;

a substantially liquid permeable topsheet layer;

an absorbent composite structure sandwiched between said backsheet and topsheet layers, said absorbent composite including an absorbent core having a first, superabsorbent containing, fibrous primary layer region and at least a second, superabsorbent containing, fibrous primary layer region;

at least one of said first and second primary layer regions having a Liquid Wicking Value of at least about 38%; and

at least one of said first and second primary layer regions includes a plurality of sublayers; wherein

[said absorbent core has a dry thickness of not more than about 6 mm, and a minimum crotch width of not more than about 10 cm] at least one of said primary layer regions includes a superabsorbent material which exhibits a Tau value of not less than about 0.8 min.

8. (canceled)

35. (amended) An absorbent article, comprising:

a backsheet layer;

a substantially liquid permeable topsheet layer;

an absorbent composite structure sandwiched between said backsheet and topsheet layers, said absorbent composite including an absorbent core having a first primary layer region and at least a second primary layer region;

at least one of said first and second primary layer regions having a Liquid Wicking Value of at least about 38%; and

at least one of said first and second primary layer regions includes a plurality of sublayers; wherein

said article is configured for use by an adult, and said absorbent core has a dry thickness of not more than about 6 mm, and a minimum crotch width of not more than about 14 cm; and

at least one of said primary layer regions includes a superabsorbent material which exhibits a Tau value of not less than about 0.8 min.

36. (amended) An article as recited in claim [36] 35, wherein said first primary layer region is located on a bodyside of the absorbent composite, and said second primary layer region is located relatively outward from first layer region.

37. (amended) An absorbent article as recited in claim [36] 35, wherein at least one of said primary layer regions includes a superabsorbent material having a Modified Absorbency Under Load value of at least about 20 g/g.

39. (amended) An absorbent article as recited in claim [36] 35, wherein

said absorbent core has a longitudinal length, a lateral width and an appointed front-most edge;

said first primary layer region has a basis weight of not less than about 100 g/m^2 and not more than about 500 g/m^2 ,

said first primary layer region has a first layer region density of not less than about 0.03 g/cm^3 and not more than about 0.4 g/cm^3 ;

said first primary layer region includes fibrous material in an amount which is not less than about 25 wt% and is not more than about 80 wt%;

said fibrous material includes fibers having fiber sizes which are not less than about 4 μm and not more than about 20 μm;

said fibrous material includes fibers which exhibit a water contact angle of not more than about 65 degrees;

said first primary layer region includes a superabsorbent material in an amount which is not less than about 20 wt% and is not more than about 75 wt%;

said superabsorbent material includes superabsorbent particles having dry particle sizes which are not less than about 140 μm and are not more than about 1000 μm;

said superabsorbent material has an MAUL value of not less than about 20 g/g; and

said superabsorbent material has a Tau value of not less than about 0.8 min.

38. (canceled)

40. (new)

41. (new)

42. (new)